

CLAIMS

We claim:

1. A stowable seating apparatus for a vehicle having a floor defining a floor surface, the seating apparatus comprising:

a seat receiving recess in the floor, extending downward from the floor surface and opening upward through the floor surface; and

a seat having a seat cushion, a foldable seat back, and a leg operatively attaching the seat cushion to the floor for selective movement of the seat with respect to the seat receiving recess between a deployed position of the seat, an intermediate position of the seat, and a stowed position of the seat;

the seat cushion having an upper surface for receiving the buttocks of a passenger when the seat is in the deployed position, and a lower surface facing the floor surface when the seat is in the deployed position;

the foldable seat back pivotably attached to the seat cushion to be foldable upon the upper surface of the seat cushion to a folded position of the seat back, and openable to an open position of the seat back for supporting the back of a passenger seated upon the cushion;

the leg having an upper pivot operatively attached to the lower surface of the seat cushion and a lower pivot operatively attached to the floor for selective movement of the leg between a substantially vertical deployed position of the leg for supporting the seat cushion in the deployed position of the seat whereat the seat cushion extends substantially perpendicular to the leg, and a substantially horizontal stowed position of the leg whereat the leg extends into the recess in a direction substantially parallel to the floor surface;

the seat cushion being operatively attached to the upper pivot of the leg for selective movement with respect to both the seat receiving recess and the leg, between the deployed position of the seat, whereat the seat cushion extends substantially perpendicular to the leg with the leg in the deployed position of the leg and the seat back is in either the open or the folded position, and the intermediate position of the seat

whereat the seat cushion with the seat back folded thereupon extends substantially perpendicularly to the leg with the leg in the stowed position of the leg;

the seat cushion with the seat back folded thereupon foldable from the intermediate position of the seat to the stowed position of the seat within the seat receiving recess by pivoting the seat cushion with the seat back folded thereupon about the upper pivot of the leg and into the seat receiving recess.

2. The stowable seating apparatus of claim 1 wherein the leg, seat back and seat cushion do not extend above the floor surface when the seat is stowed in the seat receiving recess in the floor.

3. The stowable seating apparatus of claim 2 further comprising a cover for closing the seat receiving recess, the cover having an upper surface thereof extending substantially parallel to the floor surface when the cover is closing the seat receiving recess.

4. The stowable seating apparatus of claim 1 further comprising a seat position adjustment track attached to the floor, and wherein the lower pivot of the leg is operatively attached to the seat position adjustment track for movement of the leg toward and away from the seat receiving recess.

5. The stowable seating apparatus of claim 1, further comprising a force generating device operatively attached between the leg and the seat cushion for urging the seat cushion to move toward a generally perpendicular relationship to the leg.

6. The stowable seating apparatus of claim 1, further comprising a motion damping device operatively attached between the leg and the seat cushion for resisting motion of the seat from the intermediate to the stowed positions of the seat.

7. The stowable seating apparatus of claim 1 further comprising a second leg pivotably attached to the lower surface of the seat cushion for movement between a deployed position of the second leg, whereat the leg extends substantially perpendicular to the seat cushion for supporting the seat cushion on the floor when the seat is in the deployed position, and a stowed position of the second leg, whereat the second leg extends substantially parallel to the seat cushion.

8. The stowable seating apparatus of claim 7 wherein the leg, second leg, seat back and seat cushion do not extend above the floor surface when the seat is stowed in the seat receiving recess in the floor.

9. The stowable seating apparatus of claim 7 further comprising a helper link operatively connected between the leg and the second leg for pivoting the second leg from the stowed position of the second leg to the deployed position of the second leg as the seat is pivoted from the intermediate position to the deployed position of the seat, and for pivoting the second leg from the deployed position of the second leg to the stowed position of the second leg as the seat is pivoted from the deployed position to the intermediate position of the seat.

10. The stowable seating apparatus of claim 9 wherein the leg, second leg, helper link, seat back and seat cushion do not extend above the floor surface when the seat is stowed in the seat receiving recess in the floor.

11. The stowable seating apparatus of claim 7 further comprising:
a seat anchorage in the floor for receipt of the second leg in the deployed position of the second leg; and
a releasable latch attached to a distal end of the second leg for engaging the seat anchorage when the second leg is in the deployed position of the second leg.

12. The stowable seating apparatus of claim 1 wherein the seat back includes a distal end thereof that folds toward the seat receiving recess when the seat is in the deployed position.

13. The stowable seating apparatus of claim 1 wherein the seat back includes a distal end thereof that folds away from the seat receiving recess when the seat is in the deployed position.

14. The stowable seating apparatus of claim 1 wherein the seat back includes a distal edge thereof that folds in a direction parallel to the seat receiving recess when the seat is in the deployed position.

15. A method for stowing a foldable seat beneath a floor surface in a vehicle having a floor defining the floor surface, the method comprising:

providing a seat receiving recess in the floor, extending downward from the floor surface and opening upward through the floor surface; and

providing a seat having a seat cushion, a foldable seat back, and a leg having an upper and a lower pivot for operatively attaching the seat cushion to the floor for selective movement of the seat with respect to the seat receiving recess between a deployed position of the seat, an intermediate position of the seat, and a stowed position of the seat, the seat cushion having an upper surface for receiving the buttocks of a passenger when the seat is in a deployed position, and a lower surface facing the floor surface when the seat is in the deployed position;

pivotably attaching the foldable seat back to the seat cushion to be foldable upon the upper surface of the seat cushion to a folded position of the seat back, and openable to an open position of the seat back for supporting the back of a passenger seated upon the cushion;

connecting the upper pivot of the leg to the lower surface of the seat cushion and a connecting the lower pivot of the leg to the floor for selective movement of the leg between a substantially vertical deployed position of the leg for supporting the

seat cushion in the deployed position of the seat whereat the seat cushion extends substantially perpendicular to the leg, and a substantially horizontal stowed position of the leg whereat the leg extends into the recess in a direction substantially parallel to the floor surface;

connecting the seat cushion to the upper pivot of the leg for selective movement of the seat cushion with respect to both the seat receiving recess and the leg, between the deployed position of the seat, whereat the seat cushion extends substantially perpendicular to the leg with the leg in the deployed position of the leg and the seat back in either the open or the folded position, and the intermediate position of the seat whereat the seat cushion with the seat back folded thereupon extends substantially perpendicularly to the leg with the leg in the stowed position of the leg;

folding the seat back to the folded position thereof upon the seat cushion;

pivoting the leg about the lower pivot from the deployed to the stowed position of the leg to move the seat with the seat back folded upon the seat cushion from the deployed position of the seat to the intermediate position of the seat; and

pivoting the seat cushion with the seat back folded thereupon about the upper pivot into the seat receiving recess to move the seat from the intermediate to the stowed position of the seat.

16. The method of claim 15, further comprising deploying the seat by sequentially performing the steps of:

pivoting the seat cushion with the seat back folded thereupon out of the seat receiving recess by pivoting the seat cushion about the upper pivot with the leg in the stowed position thereof, to thereby place the seat in the intermediate position; and

pivoting the leg about the lower pivot to move the seat from the intermediate to the deployed position.

17. The method of claim 16 further comprising the step of unfolding the seat back from the folded position thereof to the open position thereof.

18. The method of claim 17 further comprising:

providing a second leg pivotably attached to the lower surface of the seat cushion for movement between a deployed position of the second leg, whereat the leg extends substantially perpendicular to the seat cushion for supporting the seat cushion on the floor when the seat is in the deployed position, and a stowed position of the second leg, whereat the second leg extends substantially parallel to the seat cushion; and

providing a helper link operatively connected between the leg and the second leg for pivoting the second leg from the stowed position of the second leg to the deployed position of the second leg as the seat is pivoted from the intermediate position of the seat to the deployed position of the seat, and for pivoting the second leg from the deployed position of the second leg to the stowed position of the second leg as the seat is pivoted from the deployed position to the intermediate position of the seat.

19. The method of claim 18, further comprising securing a distal end of the second leg to a seat anchorage in the floor, when the second leg is in the deployed position of the second leg.